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# MIDWIFERY ON THE BORDER BETWEEN THE CLOSED AND THE OPEN. HOW PHILOSOPHICAL PRACTICE MIGHT CONTRIBUTE TO SCIENTIFIC CHANGE

MAYÉUTICA EN EL LÍMITE ENTRE LO CERRADO Y LO ABIERTO. CÓMO LA FILOSOFÍA APLICADA PODRÍA CONTRIBUIR AL CAMBIO CIENTÍFICO

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**Abstract:** My article discusses the possibility to use philosophical practice as a tool for scientific research. It departs from the claim that there are stages in the development of the sciences when philosophy reemerges. This happens when the sciences face open questions calling for a restructuring of the scientific framework. It is suggested that the methods of philosophical practice may turn out useful in such a process.

**Keywords:** midwifery, scientific change, socratic dialogue, open questions.

**Resumen:** Este artículo discute la posibilidad de usar la Filosofía Aplicada como un instrumento para la investigación científica. Parte del hecho de que existen fases en el desarrollo de las ciencias en que la filosofía renace. Esto sucede cuando las ciencias se enfrentan a cuestiones abiertas que exigen una reestructuración del marco científico. Se sugiere que el método de la Filosofía Aplicada podría ser giro oportuno para tal proceso.

**Palabras clave:** mayeutica, cambio científico, diálogo socrático, preguntas abiertas.

## Introduction: Philosophy as the mother of science

Philosophy has often been called the *mother of sciences*. Although the grounds for this contention seldom are stated very clearly, it

would seem to be based on at least three assumptions. First, that philosophy and science share a common ground by involving a *rational* approach to the world. Second, that there has been a *historical development* in which the principal sciences, one by one, have emerged from within philosophy. Third, that philosophy and the sciences are *different enough* to make their separation unquestionable. This difference has often been understood as the opposition between the *purely rational* and the *empirical*, or the contrast between the *speculative* and the *systematical*.

The sequel of this account of the birth of the sciences is a modern, shrunken conception of philosophy, according to which philosophy becomes a matter of purely historical concern, or is transformed into a highly specialized non-empirical science (one example being the idea of philosophy as logics). In both cases, a radical separation between philosophy and the empirical sciences is implied, although some space is left for interdisciplinary research involving philosophy in the shape of a scientific discipline

Now, I do not want to put in question that the “standard account” of how philosophy has been a mother to the sciences has some historical truth. It does not, however, form the whole picture. I want to argue that there also is another, more subtle way in which philosophy may give birth to science. Furthermore, this second birth giving does not confine itself to a, more or less, delimited moment in history. Rather, it may be viewed as process of *ongoing delivery*. What I have in mind is the way in which *philosophy* may reemerge within any science engaged in *scientific rethinking*. Understanding the very nature of this process will be the first task of my paper.

My second claim is that the reemergence of philosophy in the course of scientific thinking involves a process in which philosophical practice might turn out useful. Obviously, however, the involvement of philosophical practice in scientific research would run the risk of turning the former into a mere *technique* for

the scientist's toolbox, running against practitioners traditional ambition of promoting the good life. Some of this tension may, I will argue, however, be relieved by the realization that engaging in philosophical practice will also affect the self-understanding of science itself, fostering a greater awareness of the limitations and conditionality of science. Finally, I will turn to some remarks on the value of philosophical practice in the education of scientists.

Before proceeding, let me say some words about my background. My knowledge of the science part stems from nearly 30 years of giving basic university courses in the philosophy of science at the University of Helsinki, together with an early career as a student of physics and chemistry. The training in philosophical practice I have goes back to some ten years as a member of a Finnish society for philosophical activity named Interbaas, which specializes in Neo-Socratic dialogue <sup>1</sup>. The present article may be seen as a first step to bring together my experience of science education with my knowledge of philosophy of science and philosophical practice. Thus, it should be seen as reflections shaping a possible domain for fruitful interaction, and not as an report of actual experience of combining scientific research with the methods of philosophical practice. As already indicated, I am also aware of the possibly tensions such an interaction might create from the point of view of philosophical practice, which its traditional commitment to serving the good life.

### **Philosophy at the border between the closed and the open**

My first claim is, thus, that philosophy may reemerge within a science engaged in rethinking matters. But when does this happen,

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<sup>1</sup> See ÖSTERMAN, Bernt: "Neo-Socratic Dialogue as a Paradigmatic Setting for Philosophizing", *Philosophical Practice*, 3, 9, New York, 2014, pp. 1426-1435.

and what does it involve? In general, we are speaking about situations where the very *framework* of a branch of research is challenged. In order to clarify what is at stake, I will use a distinction between *closed* and *open questions* made by Martin Hollis as my point of departure<sup>2</sup>.

According to Hollis, a closed question is a question we know how to settle. Another way to put it, is that it poses a question *within a certain framework*. This does not imply that we currently have to be in a position to answer such a question. The crucial thing is whether we can say that the question, at least in principle, might be answered<sup>3</sup>. Here is an example of how I understand the way closed questions may be manifested within the sciences. Some years ago I was present at a talk given by a physicist concerning the present state of particle physics. I remember him saying something like the following: “We do not yet know how...” followed by surprisingly detailed description of what it, in fact, was that wasn’t known, suggesting that it only was a *matter of time* until things would become clear. I take the example, with its *claim to know the unknown*, to be typical for any research area guided by a strong framework.

In contradistinction to closed questions, open questions are questions which *we do not know how to go about with*. This could

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<sup>2</sup> HOLLIS, Martin: *Invitation to Philosophy*, Blackwell, Oxford 1985. As will become obvious there is an obvious affinity between Hollis’ discussion of emerging open questions and what Thomas Kuhn says about the occurrence of anomalies in science in his ground breaking book *The Structure of Scientific Revolutions* (KUHN, Thomas: *The Structure of Scientific Revolutions*, University Press, Chicago, 1970). Roughly, closed questions are what characterizes what Kuhn calls a *normal science*, whereas open questions are typical of a science in crisis. My reason for preferring to use Hollis’ terminology to Kuhn’s is that it seems more useful for describing the role played by *philosophy* in the process.

<sup>3</sup> HOLLIS, Martin: *Invitation to Philosophy*, Blackwell, Oxford 1985, p. 5.

also be expressed by saying that they *lack* a framework, or are posed *outside of* a such. Still, we should not think about typical open questions as being merely free floating speculation. Rather, they should be seen as questions which cannot be treated within some particular, establishes framework, thus putting it to the test, or as Hollis writes:

A closed question asks for information within an existing framework and, at some indefinite point, such requests challenge the framework itself. At that point an open question is posed, one which also wonders how it is to be answered.<sup>4</sup>

Hollis's own examples focuses on major changes in world view, such as the passage from a geocentric universe supported by the Church to the by now familiar view of the earth circulating the sun. Readers familiar with the writings of Thomas Kuhn, will, of course, immediately recognize the last quote as a description of the first phase of *radical scientific change*, or what Kuhn preferred to call *scientific revolutions* or *paradigm shifts*. To illustrate the dynamics between closure and openness inherent in Hollis's account I will choose one of the cases that were also studied by Kuhn, the discovery of oxygen in the 18<sup>th</sup> century, associated with the fall of the *phlogiston theory* of combustion<sup>5</sup>.

Roughly, the *phlogiston theory* was the idea adhered to in the first half of the 18<sup>th</sup> century, that something (a substance) was lost to a body in the process of burning, or to a metal in the related process of calcination. It went back to the ancient assumption that, when something burns, there is a substance *escaping* from the body in the fluttering flames. The framework presupposed by the theory could, qualitatively, account for, for instance, such observations

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<sup>4</sup> HOLLIS, Martin: *Invitation to Philosophy*, Blackwell, Oxford 1985, p. 17.

<sup>5</sup> My account is based on BUTTERFIELD, Herbert: *The Origins of Modern Science 1300 – 1800. Revised edition*, The Free Press, New York, 1965, Ch. 11.

that a metal could be recovered from the calcinated metal by heating it in the presence of charcoal – supposedly, as a process of regaining the phlogiston that had been lost. Hence, the question “why does a calx return to the metal when heated with charcoal” may be viewed as closed under the framework of the phlogiston theory<sup>6</sup>. The observation that challenged this framework was, however, the fact that a calcinated (i.e. dephlogistonized) metal was heavier than the uncalcinated metal. For how could this be, if calcination is a process where a substance *escapes* from the metal? Thus, the question “why is dephlogistonized metal heavier than the original metal” is open under the framework.

Now, logically at least, there are several ways of closing this question. The actual path followed by chemistry was to abandon the assumption that combustion and calcination involved the escaping of a substance, to replace it with the idea that something, in fact, was *added* to the object in the process (eventually this turned out to be oxygen). Another suggestion prevalent at the time was, however, the idea that the weight of the calcinated metal increased because phlogiston is a substance with “negative weight”, implying that a loss of it might, indeed, result in an increase of the weight of its host. The latter proposal has, of course, later become known as one of the standard text book examples of suspicious *ad hoc* hypotheses, i.e. the attempt to make amendments to a theory simply in order to save it from a particular refutation<sup>7</sup>. But as an effort to reform the metaphysics of science it was, undeniably, brave.

The downfall of the phlogiston theory may be seen as an example of how the framework of a branch of science (i.e. the early chemistry of the 18<sup>th</sup> century) is deranged by the occurrence of an

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<sup>6</sup> According to the Free Dictionary a calx is “the crumbly residue left after a mineral has been calcinated or roasted”.

<sup>7</sup> See e.g. HEMPEL, Carl: *Philosophy of Natural Science*, Prentice Hall, Englewood Cliffs, 1966, 29-30.

open question (how the weight of an object may increase by calcination) leading to a radical restructuring (the understanding of combustion as an additive process instead of a subtractive) eventually turning the recalcitrant question into a closed one. But what does *philosophy* have to do with this process? According to Hollis philosophy is, in fact, absolutely vital for the dynamics of the open and the closed – or as he expresses it, “the work of philosophy is at the shifting border between closed and open”. This sounds good, but how, exactly, is it to be understood?

### **The role of philosophy in radical scientific change**

Let us start by asking how open questions are related to philosophical questions. I think the answer simply is that philosophical questions which are questions which are open in relation to prevailing frameworks of thought. Obvious examples of traditional philosophical questions open in this way are, for instance, questions related to the knowledge of the external world. Take for instance a question like “how do I know that the tree I see over there *really is* there?”, which is open in relation to our ordinary framework for establishing the existence of things (e.g. by using our senses). But, and this, clearly, is Hollis’ view, some questions which apparently *sound* scientific, may, covertly, contain a philosophical dimension (in proportion to the degree to which they are open). His favorite example is the question “Is there conscious life elsewhere in the universe?”, where the difficulty is related to what possibly would *count* as being conscious<sup>8</sup>.

Thus, it clearly makes sense, to localize the birth of philosophical questions to what Hollis calls “the shifting border between the closed and the open”. And where there are

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<sup>8</sup> HOLLIS, Martin: *Invitation to Philosophy*, Blackwell, Oxford 1985, pp. 1-2.



philosophical questions there is, *naturally*, a place for “the work of philosophy”. But how, precisely, does philosophy *act* on these questions? I think we can say that *philosophy explores possible ways of restructuring the framework in relation to which a question appears to be open*. We should, however, recognize that the philosophical work in connection with radical scientific change, in particular, does not presuppose the involvement of a *professional philosopher*. Normally, what actually happens when a science recloses its questions by successfully altering its framework is, clearly, that there is a single *scientist* who suddenly excels in a philosophical thinking (in the case of the phlogiston theory it was Lavoisier)<sup>9</sup>.

In principle, it would still seem possible that professional philosophers could be called in to help with such cases, armored with the special knowledge and skills the philosophical expert is expected to have (I am now, of course, thinking of philosophy in the shrunken, modern sense). Perhaps there are such cases, but I would be surprised if they were very common (I have, of course, heard of logicians and mathematicians helping each other, but I am now mainly interested in the contribution philosophy might give to *empirical sciences*). Still, however, the mere fact that scientists are the ones that might be expected to do the philosophical thinking required in radical scientific change, does not imply that there would be no room for professional philosophers in a wider sense. In fact, we here seem to have a clear space for *philosophy as*

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<sup>9</sup> “At this moment there emerged one of those men who can stand above the whole scene, look at the confused pieces of the jig-saw puzzle and see a way of turning them into a pattern. He was Lavoisier, and it is difficult not to believe that he towers above all the rest and belongs to the small group of giants who have the highest place in the story of the scientific revolution”, Butterfield, somewhat pathetically, writes in a passage that surely sounds like the intervention of a “great philosopher”, see BUTTERFIELD, Herbert: *The Origins of Modern Science 1300 – 1800. Revised edition*, The Free Press, New York, 1965, p. 217.

*midwifery*, or the ancient idea of helping people to give birth to philosophical insights. Thus, perhaps, it is not at all the modern academic philosopher the perplexed scientist should turn to, but the modern philosophical midwives, the brave men and women that nowadays are called philosophical practitioners?

Given the characterization of philosophical practice offered in a recent basic book in the field, the suggestion would at least seem worth considering. In the Prologue to the brand new *Socratic Handbook* Michael Noah Weiss describes the task of a philosophical practitioner as follows:

Socrates understood a philosopher's role to assist in this delivery [when the soul is pregnant and wants to give birth] ... If we go along with this Socratic "work attitude", *a philosopher's job is to support others on how to wonder, give birth to new ideas, and with that to change perspective and to think differently*<sup>10</sup>.

Now, clearly, this sounds exactly as the kind of help a science facing a set of open question threatening its framework needs! But exactly how should the philosophical practitioners support be conducted? I will now turn to some reflections on this subject.

## Two modes of philosophical practice

I will begin by suggesting a distinction between two basic ways in which philosophical practice may be conducted. The first I call *Questioning* and the second *Dialogue*. They stand for different modes of interaction between the practitioner and the client(s), and, normally, also involve different numbers of participants. Thus,

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<sup>10</sup> WEISS, Michael Noah: "Prologue: Think Different", in WEISS, Michael Noah (ed.): *The Socratic Handbook*, Lit Verlag, Wien, 2015, p. 5, my italics.

whereas the typical setting for a Questioning only would involve the practitioner and one client, I think of a Dialogue as involving at least two participants *other* than the practitioner (who usually would be called a *facilitator*). It should, however, be added that the two methods, despite of representing different modes of philosophical practice, do not exclude one another, in fact a combination of the two may sometimes turn out fruitful.

Basically, Questioning is the activity where the primary objective is to get clear about the presuppositions and patterns inherent in a client's way of thinking and behaving. As the name already indicates, the basic technique is to work through a structure of questions and answers, where the practitioner assumes the role of the interrogator. In philosophical practice Questioning is an important part of the branch called *philosophical counseling*, which usually is initiated by an existential problem encountered by the client. Thus, the idea of helping the client to *solve* a particular problem usually forms an integral part of the process.

Now, as the reader may have noticed, Questioning looks very much like the kind of process Socrates subjects his interlocutors to in Plato's Dialogues. Thus, trivially it would seem, what I call Questioning certainly falls under the concept of a Socratic *Dialogue*, some may even want to see it as the very paradigm example of such an activity. So, what is the point of making a distinction between *this* activity, and Dialogue (or Dialogue *proper*)?

What I have in mind is a distinction that, if not always observed, clearly, is there *to be made* in philosophical practice. It is certainly present in ordinary language. For wouldn't one of the reactions to a Socrates appearing in modern society be that he is not actually speaking, or *genuinely in dialogue*, with his interlocutors, suggesting that he is not *involving himself* in the discussion? Or, if my example appears too imaginative, think of the way we may react similarly to any present day therapist, standing in a "clinical"

realation to his, or her, clients (psychologists, doctors, marriage counselors, and the like). Thus, as opposed to the mode of questioning directed from one part to another, I want to reserve the term Dialogue for a conversational mode characterized by *equality* and a *mutual interest*. To this we may add the condition of *working together towards a shared goal*.

As my primary example of a Dialogue I take *Neo-Socratic Dialogue*. Basically, this is a form of dialogue initiated by Leonard Nelson, and developed further by his pupil Gustaf Heckmann<sup>11</sup>. It should, however, be noted that there are some different versions of similar dialogues around. Neo-Socratic Dialogue is also used for various purposes<sup>12</sup>. I am myself mostly familiar with at version in which the idea is that a group (ideally 8-10 persons) analyzes a concept, or a phenomenon, based on personal experiences recounted by the participants. But it is also, for instance, possible to start from a particular question.

The most pertinent feature of Neo-Socratic Dialogue is a set of rules which govern the discussion which may be summarized a follows:

**I. Think for yourself!**

R1: References to authorities are forbidden.

**II. Think here and now!**

R2: Avoid bringing your already established views to the discussion.

R3: Be prepared to give up your previous views on a subject.

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<sup>11</sup> See specifically NELSON, Leonard: *Socratic Philosophy and Critical Philosophy. Selected Essays*, Yale University Press, New Haven, 1949, CH. 1 and HECKMANN, Gustaf: *Das Sokratische Gespräch. Erfahrungen in philosophischen Hochschulseminaren*, Hermann Schroedel Verlag KG, Hannover, 1981.

<sup>12</sup> "Neo-Socratic Dialogue is today used in many different contexts and strives to realize several goals simultaneously", Helge Svare writes in SVARE, Helge: *Den gode samtalen. Kunsten å skape dialog*, Pax Forlag, Oslo 2008, p. 159 (my translation from the original Norwegian).

### **III. Think together!**

R4: Keep to the subject.

R5: Listen to others.

R6: Encourage the thinking of others.

R7: Avoid dominating the discussion.

R8: Try to look at every statement as a contribution to a discussion.

### **IV. Stay close to life!**

As I have described elsewhere, a discussion governed by these rules form, I believe, an ideal setting for *philosophizing* by liberating the thoughts of the participants and positioning them for creative interaction<sup>13</sup>.

Questioning and Dialogue are different in many respects. As already indicated Questioning is normally a process involving only one client (in the case of Socrates there may, of course, be many, but one gets the impression that they are standing in a row, so to say). Dialogue involves many participants working together on a question. Both modes of practice are certainly true to the Socratic ideal of the philosopher as ignorant, but in different ways. In Questioning the practitioner assumes the position of an interrogator, whereas in Dialogue the practitioner acts as a facilitator of a dialogue between others (in Neo-Socratic Dialogue this, for instance, means to supervise the observance of the rules). Whereas Questioning is directed towards disclosing personal patterns of thought, Dialogue deals with what is shared by a community.

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<sup>13</sup> ÖSTERMAN, Bernt: "Neo-Socratic Dialogue as a Paradigmatic Setting for Philosophizing", *Philosophical Practice*, 3, 9, New York, 2014, spec. pp. 1428-1431.

## Philosophical practice in scientific research

Let us pause for a minute to take stock of what, so far, has been said. I have argued that philosophy's birth giving to the sciences should not be seen as confined to a, once and for all, closed set of historical moments. On the contrary, we are dealing with an ongoing process occasioned by the emergence of open questions challenging the frameworks of the sciences. These reemerging windows for philosophy, however, do not normally imply that the scientist may take the liberty to hand over a bunch of philosophical problems to a professional philosopher and go on holiday. Rather, it calls for a capacity for philosophical thinking *within* the community of scientists. Still, there appears to be a space for philosophical intervention, but not with the philosopher in the role of a distinguished adviser or specialist to whom certain difficult questions may be trusted. What is required is for someone to step into the shoes (or sandals) of the legendary Socrates by assuming the part of an intellectual midwife. This brought us close to the domain of the activity that today is called philosophical practice. In the preceding section I have offered a distinction between two basic modes of philosophical practice and now is the time to apply the discussion to scientific research.

Now, as already stated in the introduction, my article is not based on any experience of working with scientist engaged in the restructuring of their field of knowledge (we should also remember that such cases are rare). In fact, I do not know of anyone else who has attempted something exactly like this either. Consequently, I cannot do more than offer some remarks that, maximally, will serve a sketchy indications of how things might work out in a domain that certainly still is in a pristine stage.

In drawing the distinction between Questioning and Dialogue I have already, more or less tacitly, assumed a certain division of labor. Thus, Questioning is the form of activity primarily aimed at

disclosing a framework, whereas Dialogue is the activity in which a framework is changed<sup>14</sup>. Now, this may look as an simplification, as it, to some extent, probably is. Hence, a process of Questioning may certainly initiate a change, similarly it does not seem impossible that a Dialogue also may result in a stronger awareness of the framework one is working under. Still, I believe that such outcomes often would appear as a *blending* of practices (which, of course, might be highly desirable). Thus, for example, a Questioning leading to a radical restructuring of thought might also include dialogical elements, where the process of questions and answers is nurtured by a growing mutual understanding of what is at stake (meaning that the questioner starts to enter increasingly dialogically into the proceedings). This being said, I will now attempt to offer a sketch of how the methods of philosophical practice might be applied to promote radical scientific change. For sake of simplicity, I will not try to enter an ongoing scientific dispute, but stick to the historical case of the decline of the phlogiston theory presented above, assuming that this is sufficiently like anything that might presently be going on (like the question of dark matter in astrophysics).

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<sup>14</sup> It may be noted, that there is a certain affinity between my distinction between functions of Questioning and Dialogue and “the two visions of philosophical practice” Ran Lahav has described as follows: “In the first vision, philosophy is a tool for solving personal problems. In the second vision, philosophy is a journey towards new horizons of life. The first vision tries to make our Platonic cave comfortable and problem-free. The second vision encourages us to step out of our Platonic cave. The first wants to adjust us to normal life. The second offers to awaken us from normal life” (LAHAV, Ran: “Two Visions of Philosophical Practice”, available in [www.philopractice.org/the-vision-of-philosophical-practice/item/146-6-two-visions-of-philosophical-practice.htm](http://www.philopractice.org/the-vision-of-philosophical-practice/item/146-6-two-visions-of-philosophical-practice.htm), last access October 30th, 2015). In particular, of course, encouraging the “stepping out of the cave” is, precisely, the role I am tentatively assigning to philosophical practice as a contribution to scientific research,

So, let us start by assuming that there is a community of scientists adhering to the phlogiston theory of combustion, according to which a substance called phlogiston escapes from a body that burns, or is calcinated. Let us continue by assuming that the theory is confirmed by a number of experiments, such as regaining a metal from a calx by heating it in the presence of charcoal. There is, however, also an experimental outcome that doesn't seem to fit the picture at all, i.e. a persistent increase in weight registered for any instance of a calcinated metal. The community of chemists are facing an open question: why does a metal get heavier through a process of calcination?

Now, let us add the assumption that the particular scientific community is lucky enough to have intellectual midwives around, whom the scientists turn to in their distress. What should such a practitioner do? Following the division of labor that has been assumed above, the first step would be to use Questioning to help the community in disclosing the framework of the phlogiston theory. What are, for instance, the assumptions of the nature of phlogiston inherent in the theory? Is it a substance just like any other, or of a very special kind? And what kind of beliefs about substances are prevalent among the chemists in question (and so on)?

From this we move to Dialogue. A number of colleagues working on the issue of the strange increase in the weight of a metal through calcination are invited for a discussion under the guidance of the practitioner, who now would switch from questioner to being a facilitator of a Socratic-type dialogue. To simplify, we may assume that it starts right from the crucial question, i.e. "why does a metal get heavier through a process of calcination?" The task of the facilitator is to eliminate some common hazards to a philosophical dialogue like competitiveness, prestige, dominant natures, shyness, reliance on authority, or mere stubbornness of human beings. This he, or she, would, of course,



do by surveying adherence to a set of discussion rules. These might, I believe, look very much like the rules of Neo-Socratic Dialogue listed above, with one obvious exception: the fourth imperative, “Stay close to life!” would not seem to make much sense in this context (I will return to this seemingly innocent move in the following section).

Before closing my imaginative example I would like to add a suggestion concerning how Questioning and Dialogue might be combined in a case like this. An important imperative of the Neo-Socratic dialogue is the idea that the participants should bring as little as possible with them to the discussion (captured in the rules R1 and R2 above). Now, the presuppositions disclosed in the process of Questioning may be understood, precisely, as the set of assumptions the scientist may have to abandon to regain the closure of his, or her, field. Most importantly, however, it should be possible to advance *piecemeal*. Thus, we may envisage a situation where the initial Questioning would result in the list of, say, three presupposition of the theory under examination, P1, P2 and P3. By tentatively abstaining from all three of them, we would get a maximally liberated philosophizing on the subject at hand. It might, however, be more fruitful to proceed by abstaining from the presuppositions one by one, with a keen eye for tensions created among our most deeply entrenched beliefs in subsequent discussion. If all this sounds too neat for a real life situation, we may add the possibility that some parts of the framework are disclosed only gradually through the Dialogue (we may also assume that the facilitator is able to switch from one mode to another in the living process by asking the right questions at the right moment). To illustrate, we may assume that imaginary group of phlogistonists with access to an intellectual midwife at *some point* of the Dialogue would come to a point were they also try to abstain from the basic assumption that combustion, and calcination, basically involves a substance *escaping* from the body (on the way

perhaps even passing through the stage of bracketing the presupposition that weights only can be positive).

For sake of clarity, it should perhaps be added that I am at no point suggesting that problems of science could be solved by Questioning and Dialogue *alone*. The ultimate test of any intellectual innovation belonging to science, of course, remains empirical.

### **The perspective of philosophical practice**

Although my suggestions admittedly have been very sketchy, I hope that I have been able to convince my reader that there, indeed, could be cases where applying the methods of philosophical practice in scientific research actually might make sense, not to say be fruitful. So far, I have not, however, said anything about how this all might look from the point of view of the philosophical practitioner. Is giving a helping hand to scientific research in the suggested way something the philosophical practitioners would like to do? And would they be able? I will start with the latter question.

Philosophical practice, as we know it, does not require any specialized *theoretical* knowledge. Being able to ask the right questions, and observing things like that a participant is keeping to the subject in a dialogue, do not require any other knowledge than what follows from sharing a culture and language with the clients. Acting as an midwife of scientific thinking in a philosophical mode would, naturally, be an entirely different thing. Clearly, any successful intervention would require at least some scientific training. Consequently, it would suddenly be reasonable to talk, for instance, of philosophical practitioners *specializing* in physics, chemistry, biology, or the like.

But getting involved with science would also seem to bring in ideological considerations. Whatever philosophical practice else

may be, there is a strong historical connection with the idea of *promoting the good life*. A philosophical practice reduced to a – however unique – tool of scientific research seems difficult to reconcile with this ideal. In fact, we already saw that the requirement of staying close to life associated with Neo-Socratic Dialogue does not seem to have any significance in the application to scientific research we have been discussing. The traditional goal of creating, or restoring, meaning to people by examining their lives, simply seems worlds apart from a practice focused on being a technique to trigger scientific development. Another, related argument, may, I think, be derived from the opposition between, on the one hand, the *inherently valuable* character of at least some forms of philosophical practice and, on the other hand, the strong instrumentality of a practice ultimately aiming at *solving* scientific problems<sup>15</sup>.

It might, however, also be argued that the line I am drawing between an ethically oriented philosophical practice and the envisaged philosophical practice-like activity performing midwifery of radical scientific ideas, is too sharp. A method partially aimed at bringing frameworks of thinking into view will, I want to argue, inevitably also affect the perception of things. Thus, it seems clear that an encounter between philosophical practice and scientific research also would affect the way the participating scientists *understand science and scientific research*. Minimally, this would involve an improved awareness of the conditions presupposed by the scientific activity in question. Probably, it would also be a cure against scientism by contributing to a better understanding of the very nature of science, and its place in the world.

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<sup>15</sup> See ÖSTERMAN, Bernt.: “Neo-Socratic Dialogue as a Paradigmatic Setting for Philosophizing”, *Philosophical Practice*, 3, 9, New York, 2014, spec. pp. 1427 and 1433.

## Conclusions

The article started from the suggestion that the contention that philosophy is the mother of the sciences may be understood in two different ways. On the “standard account” it describes the actual historical roots of the various scientific disciplines we have today. According to this, the sciences are *offspring* of philosophy, which certainly preserve some features of their origin, such as a “rational outlook”, but still continue to develop in a clearly separate grove. I have, however, attempted to show that there also is another, more subtle, way in which philosophy reemerges in the sciences. This happens when the framework of a science is challenged by the occurrence of open questions, characterized by the bewilderment of not knowing the way to go on. In general, the solution does, however, not call for professional philosophers, but scientists excelling in philosophical thinking. As I have indicated, it, however, seems reasonable to think that such a process might be facilitated by invoking “intellectual midwives”, applying some of the methods known from philosophical practice. In particular, I have suggested that a science in turmoil might profit from the methods I have identified as Questioning and Dialogue.

Now, as brought up in the last section, combining interests with the sciences may give rise to some friction with the ideology of the movement of philosophical practice. For what happens to the grand objectives of promoting the good life by helping people to solve their problems, and perhaps sometimes even to show them a way *out* of their personal cave<sup>16</sup>? Adding the quite obvious requirement that the practitioner would benefit from a thorough knowledge of the scientific field he, or she, is entering, it will start to look like we

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<sup>16</sup> LAHAV, Ran: “Two Visions of Philosophical Practice”, available in [www.philopractice.org/the-vision-of-philosophical-practice/item/146-6-two-visions-of-philosophical-practice.htm](http://www.philopractice.org/the-vision-of-philosophical-practice/item/146-6-two-visions-of-philosophical-practice.htm) (last access October 30th, 2015).

are simply creating a new field of practical expertise, which only happens to borrow some ingredients from philosophical practice. Not quite so, however. As indicated at the end of the last section, engaging in methods like Questioning and Dialogue would, inevitably I believe, not only enhance the creative powers of scientists, but also affect their *perspective* on what they are doing.

Consequently, my discussion also points towards a positive conclusion. There should be much to be gained from invoking the methods of philosophical practice in the education of scientists at the universities. What I am envisaging is a scientific training where Questioning and Dialogue would appear not only as exclusive techniques brought in at the decisive moments of science, but rather as a lasting feature of everyday education. It would involve learning how to answer and how to put questions, how to fruitfully participate in well-organized dialogues in order to *genuinely think* together, and how to conduct thought-experiments on what *might* be the case. To develop the utterly important skill of *doing science with a distance*.

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